

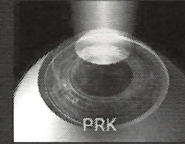
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Assessment of Factors Associated with Post-Operative Pain Following Photorefractive Keratectomy

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• I have no financial disclosures

Purpose:



- Determine if there are demographic, surgical, or post-operative factors that contribute to post-operative pain following Photorefractive Keratectomy (PRK)

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Background:

- PRK
- LASIK vs PRK
- Post-operative pain
- PRK heavily utilized in the DoD

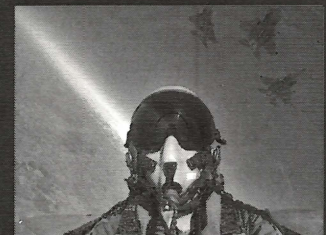


Objectives

- Purpose
- Background
- Methods
- Results
- Conclusion

PRK in the Military:

- USAF performed over 70,000 laser eye surgeries 2000-2011
- 30,000 surgeries have been performed at the Warfighter Refractive Surgery Center at Wilford Hall Ambulatory Surgical Center (WHASC)
- Operational advantages




PRK & Post-operative Pain

The diagram illustrates the five steps of the PRK procedure:

- 1. Photorefractive keratectomy (PRK):** A laser beam (labeled 'excimer') is used to remove the corneal epithelium, creating a wound bed.
- 2. Anterior keratocytes commit apoptosis:** The keratocytes in the anterior layer of the cornea undergo programmed cell death.
- 3. Migrating cells:** Epithelial cells from the limbus migrate across the wound bed to form a new monolayer on a fibronectin matrix.
- 4. Limbal stem cells activate to produce post-mitotic cells:** The limbal stem cells become active and produce post-mitotic cells.
- 5. Keratocytes become active and synthesize new extracellular matrix:** The keratocytes in the stroma become active and synthesize new extracellular matrix.

The collage consists of seven distinct images arranged in two rows. The top row features four items: a bottle of Anesthetized, a box of Paracetamol, a box of Refresh Plus eye drops, and a bottle of Phenergan. The bottom row features three items: a box of Phenergan, a bottle of Vitamin C, and a pair of sunglasses.

Controlling Pain



The collage features several items related to pain management:

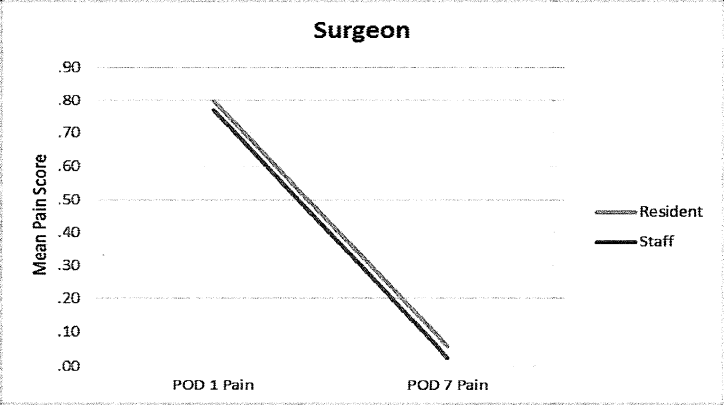
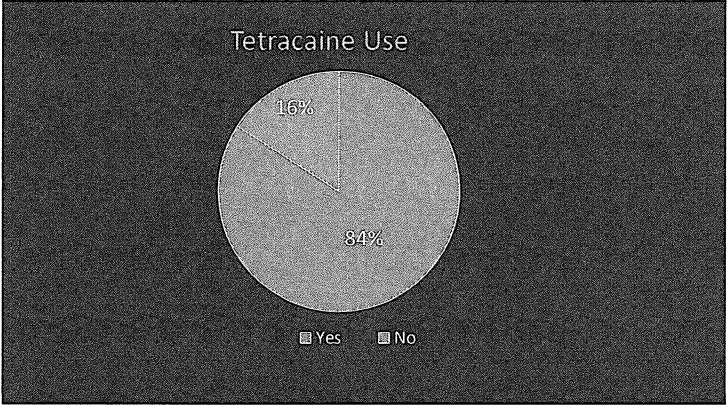
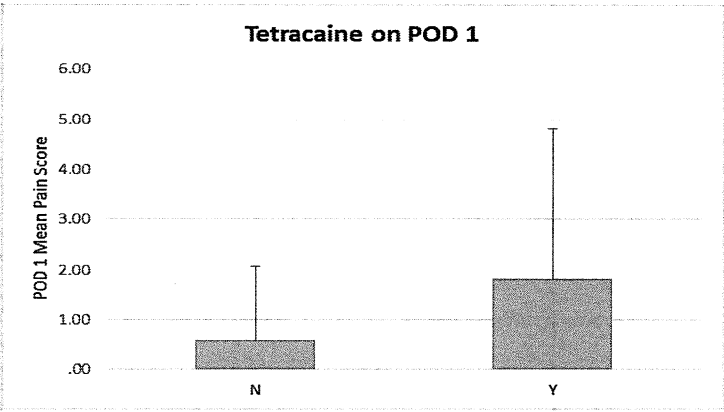
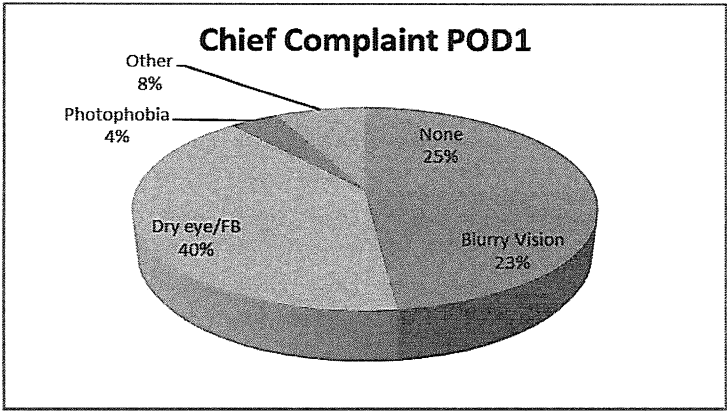
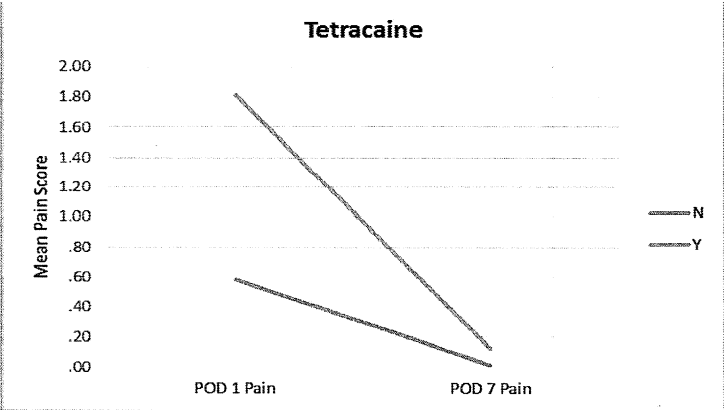
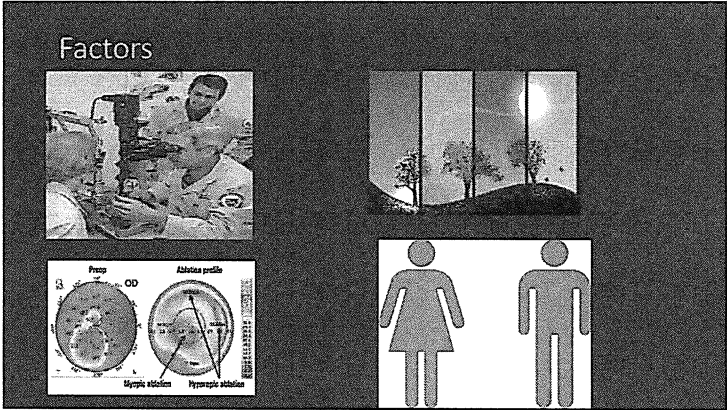
- Top Left:** A white bottle of Tylenol Extra Strength capsules.
- Top Middle-Left:** A white bottle of Motrin (ibuprofen) capsules.
- Top Middle-Right:** A box of Motrin capsules.
- Bottom Left:** A white bottle of Acuvue Oasys contact lenses.
- Bottom Middle-Left:** A box of Acuvue Oasys contact lenses.
- Bottom Middle-Right:** A photograph of three chocolate truffles.
- Bottom Right:** A photograph of a person holding their head in pain, with a small inset image of a person's face showing discomfort.

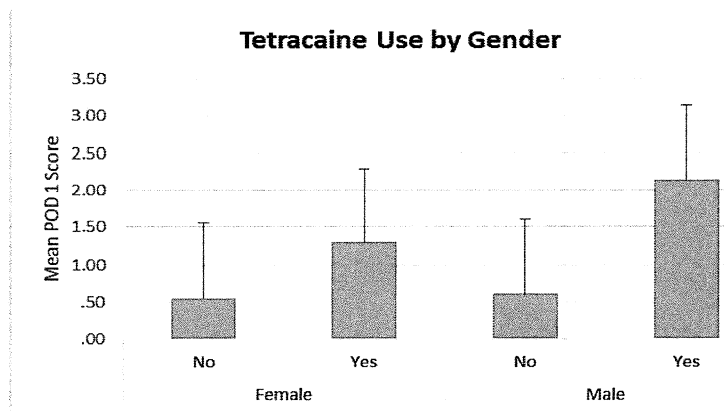
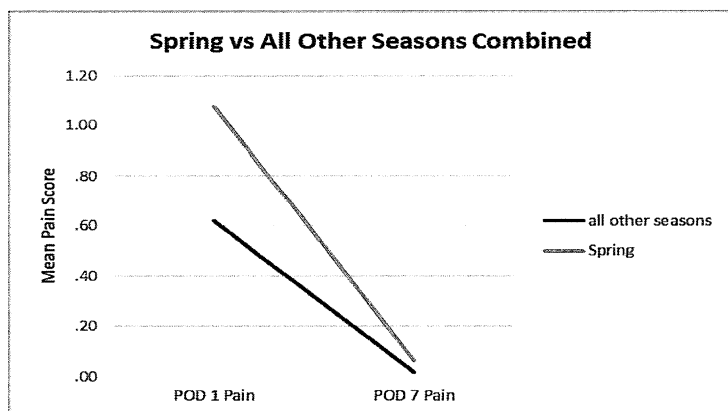
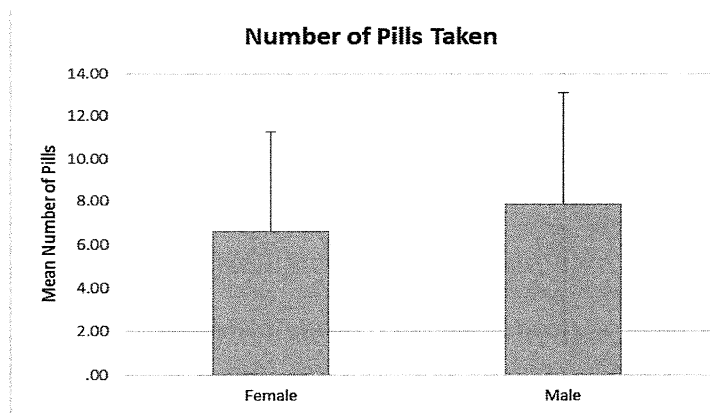
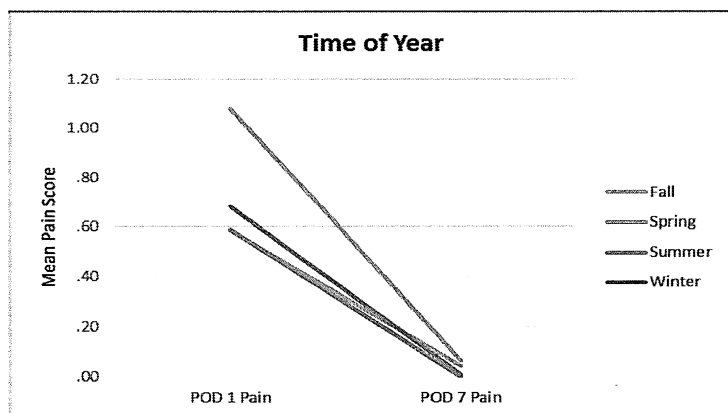
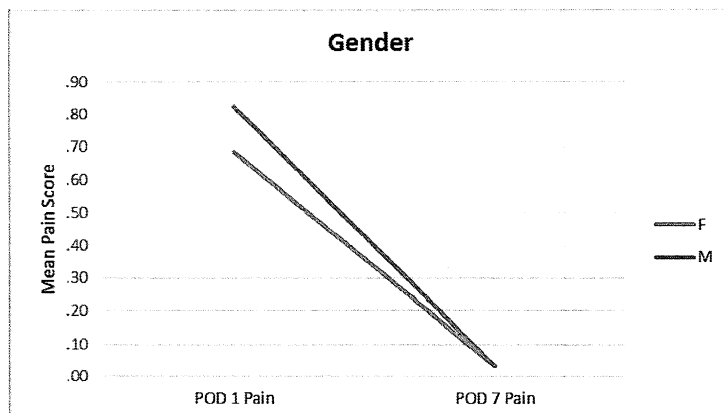
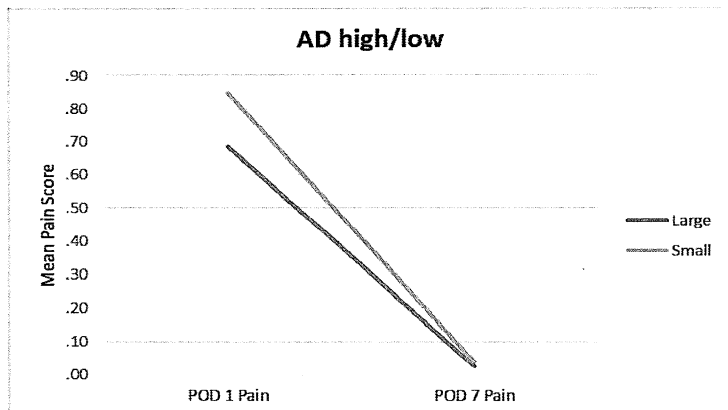
PRK Sequence

The PRK Sequence is illustrated through a series of images:

- Diagram of the eye showing the cornea and the treatment area.
- Diagram of the cornea being treated with an Amols brush.
- Diagram of the eye after treatment, showing a shield-shaped area of the cornea being treated.
- Diagram of the eye after treatment, showing a shield-shaped area of the cornea being treated.

- Subjects who do not meet the inclusion criteria
- Subjects who previously had refractive surgery





Conclusions:



- Post-operative PRK at JWRSC is generally low
- Surface complaints/visual distortion within the first week are the most common complaints
- Spring surgeries are more likely to have higher POD1 scores
- Men statistically take more pain medications and trended to reporting more POD 1 pain.
- Limitations: Not large enough of a sample size. Pain scores were only recorded at POD 1 and POD 7, more data points would be helpful

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- Dr. G Legault Maj, USA, MD
- Dr. J Santamaria Capt, USAF, MD

Bibliography

1. Shortt AJ, Allen BD. Photorefractive keratectomy (PRK) versus laser assisted in situ keratomileusis (LASIK) for myopia. *Cochrane Database-Syst Rev*. 2006; CD005135.
2. O'Doherty M, Keenan C, O'Keefe M, O'Doherty J. Postoperative Pain following Epi-LASIK, LASEK, and PRK for Myopia. *J Refract Surg*. 2007 Feb;23(2):133-8.
3. Jan, Michelle [February 28, 2011]. "Eye surgery opens pilot training to wider pool". *Air Force Times*.
4. McCarthy CA, Garrett SK, Aldred GR, Taylor HR. Assessment of Subjective Pain following Photorefractive Keratectomy. *J Refract Surg*. 1996 Mar-Apr; 12(3):365-9.
5. Pribbenza JW, Matis CS, Dietz MR, Tauber J, Irvine JW, Sahlatov FN. Excimer photorefractive keratectomy for myopia. *Ophthalmology*. 1993;100: 1335-1345.
6. Taylor HR, Kelly P, Alpins N. Excimer laser correction of myopic astigmatism. *J Cataract Refract Surg*. 1994;20: 243-251.
7. Sedet T, McDonnell PJ. Excimer laser photorefractive keratectomy. *Surv Ophthalmol*. 1995; 40:89.
8. Gentry DS, Mui MG, Marshall F. Excimer laser photorefractive keratectomy: 18-month follow-up. *Ophthalmology*. 1997;99: 1209-1218.
9. Vetrugno M, Mainero A, Quatanta GM, Cardo L. A randomized, double-masked, clinical study of the efficacy of four nonsteroidal anti-inflammatory drugs in pain control after excimer laser photorefractive keratectomy. *Can Ther*. 2000 Jan; 42(6):719-21.
10. Cherry PM, Sutton MK, Auhkary H, et al. The treatment of pain following photorefractive keratectomy. *J Refract Corneal Surg*. 1994 Mar-Apr;10(2):227-5.
11. Cherry PM. The treatment of pain following excimer laser photorefractive keratectomy: additive effect of local anesthetic drops, topical diclofenac, and bandage soft contact. *Ophthalmic Surg Lasers*. 1996 May;27(5):477-80.
12. Eslangpour A, Malakkeh-Nikouei B, Alayshani M, Bayani R. Efficacy of extended release oral diclofenac in postoperative pain management after photorefractive keratectomy. *J Ocul Pharmacol Ther*. 2013 Sep;29(7): 670-7.